US006213438B1

(12) **United States Patent**
Ostby et al.

(10) **Patent No.: US 6,213,438 B1**
(45) **Date of Patent: Apr. 10, 2001**

(54) **COMPUTER SUPPORT FOR VEHICLE USE HAVING MULTIPLE POSITION ADJUSTMENTS**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/465,407**

(22) Filed: **Dec. 16, 1999**

(51) **Int. Cl.**[7] **F16M 11/06**
(52) **U.S. Cl.** **248/276.1**; 224/539; 224/553; 224/564; 224/929; 248/122.1; 248/176.3; 248/920; 248/279.1
(58) **Field of Search** 248/124.1, 125.9, 248/918, 919, 920, 921, 922, 923, 924, 419, 420, 421, 122.1, 123.11, 274.1, 276.1, 278.1, 279.1, 280.11, 281.11, 283.1, 176.3, 178.1, 917; 224/545, 553, 564, 539, 929; 108/44

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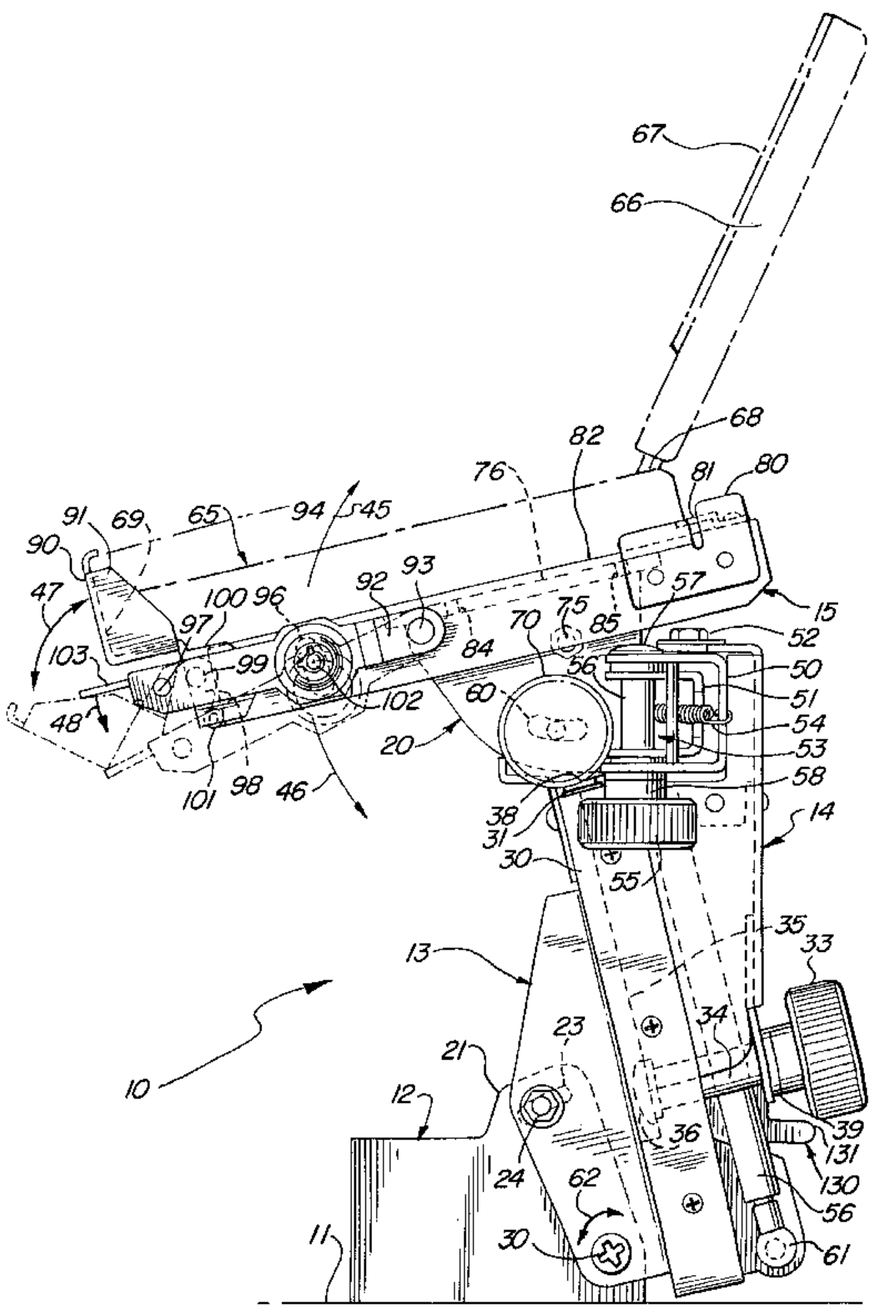
(57) **ABSTRACT**

A computer support for use in a vehicle interior includes a base having a pivotally secured riser bracket coupled thereto. The base is attached to a convenient vehicle surface such as the transmission hump or the like. A pair of telescoping risers are supported by the riser bracket and provide vertical movement of an arm carrier mechanism. The arm carrier in turn supports a pair of pivotally coupled arms which in turn support a platform bracket. A computer platform suitable for receiving and supporting a portable computer is received upon the platform bracket and includes a lock mechanism for securing the computer against unauthorized removal. Adjustments are provided for the vertical heights and horizontal position as well as angular tilt and horizontal angular position of the computer platform. Each adjustment of each position and angle includes apparatus for securing and maintaining a selected position.

17 Claims, 4 Drawing Sheets



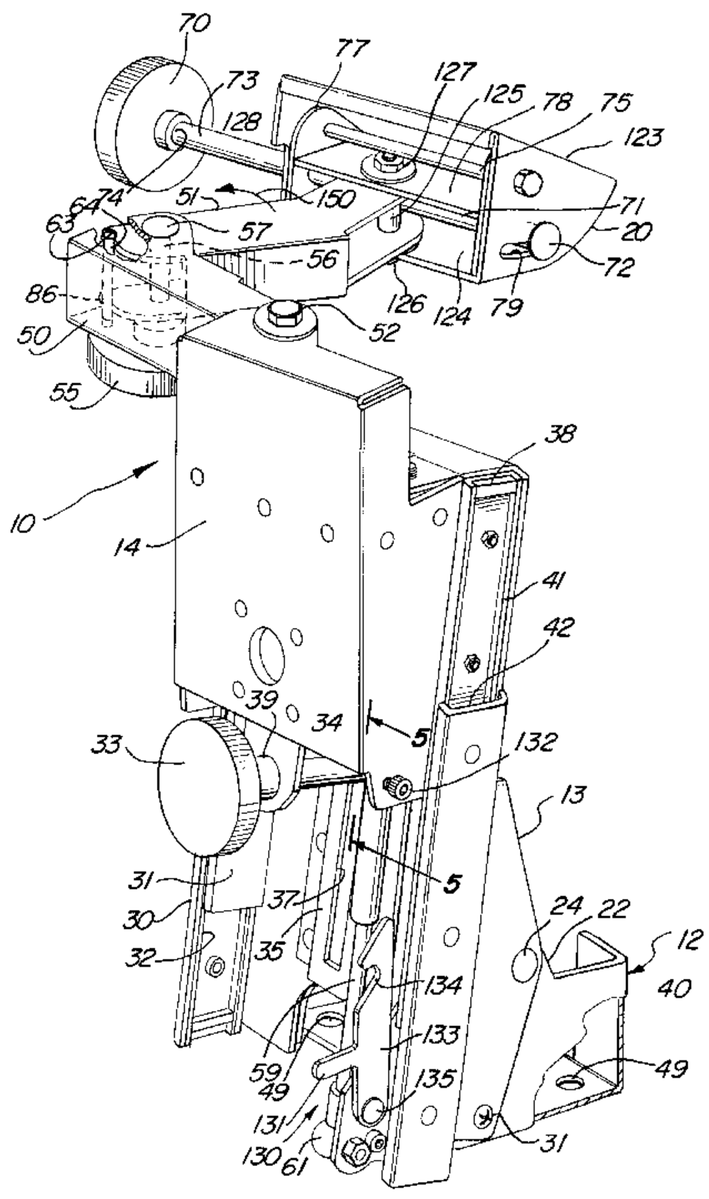


FIG. 1

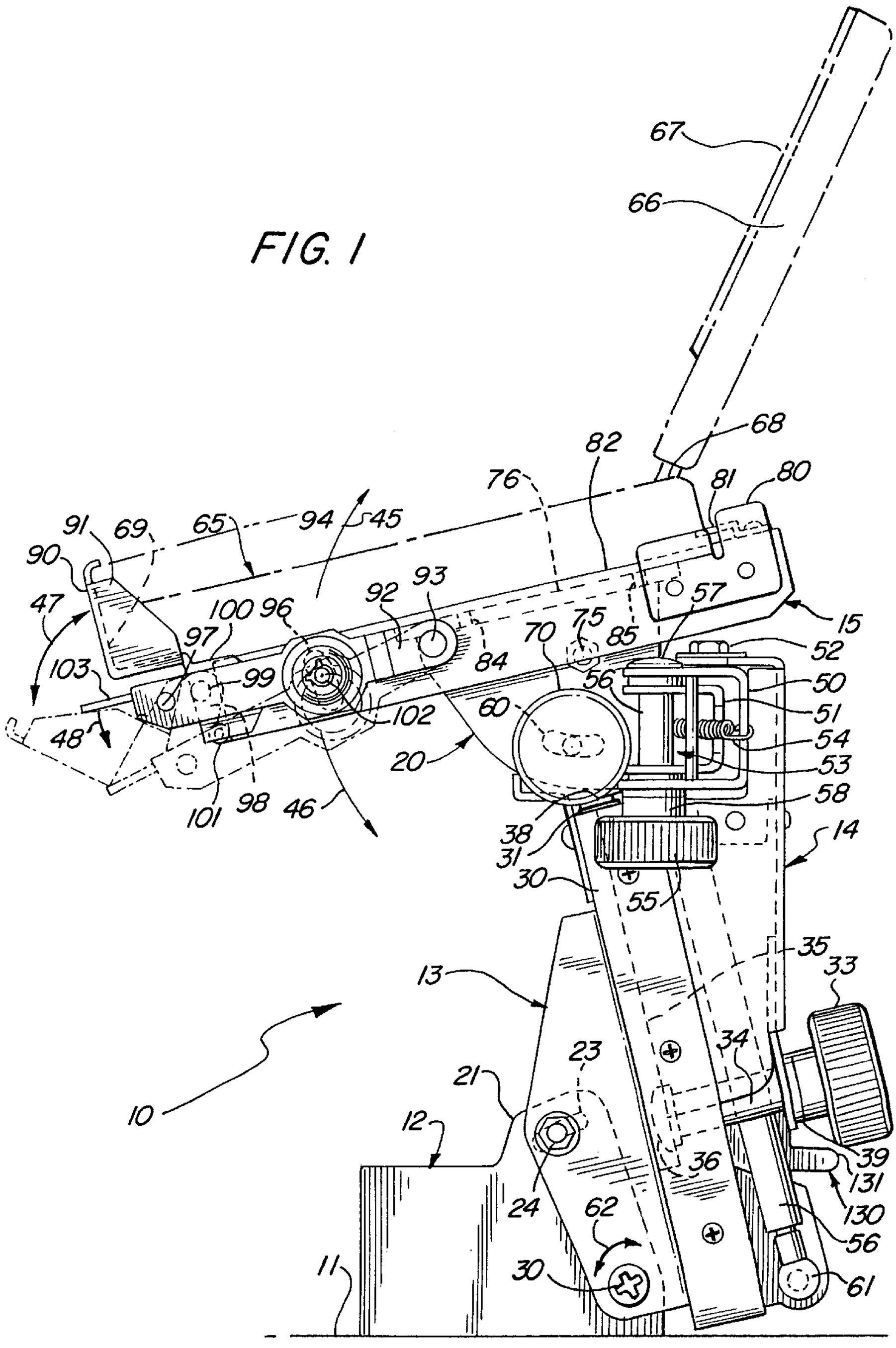

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FIG. 2

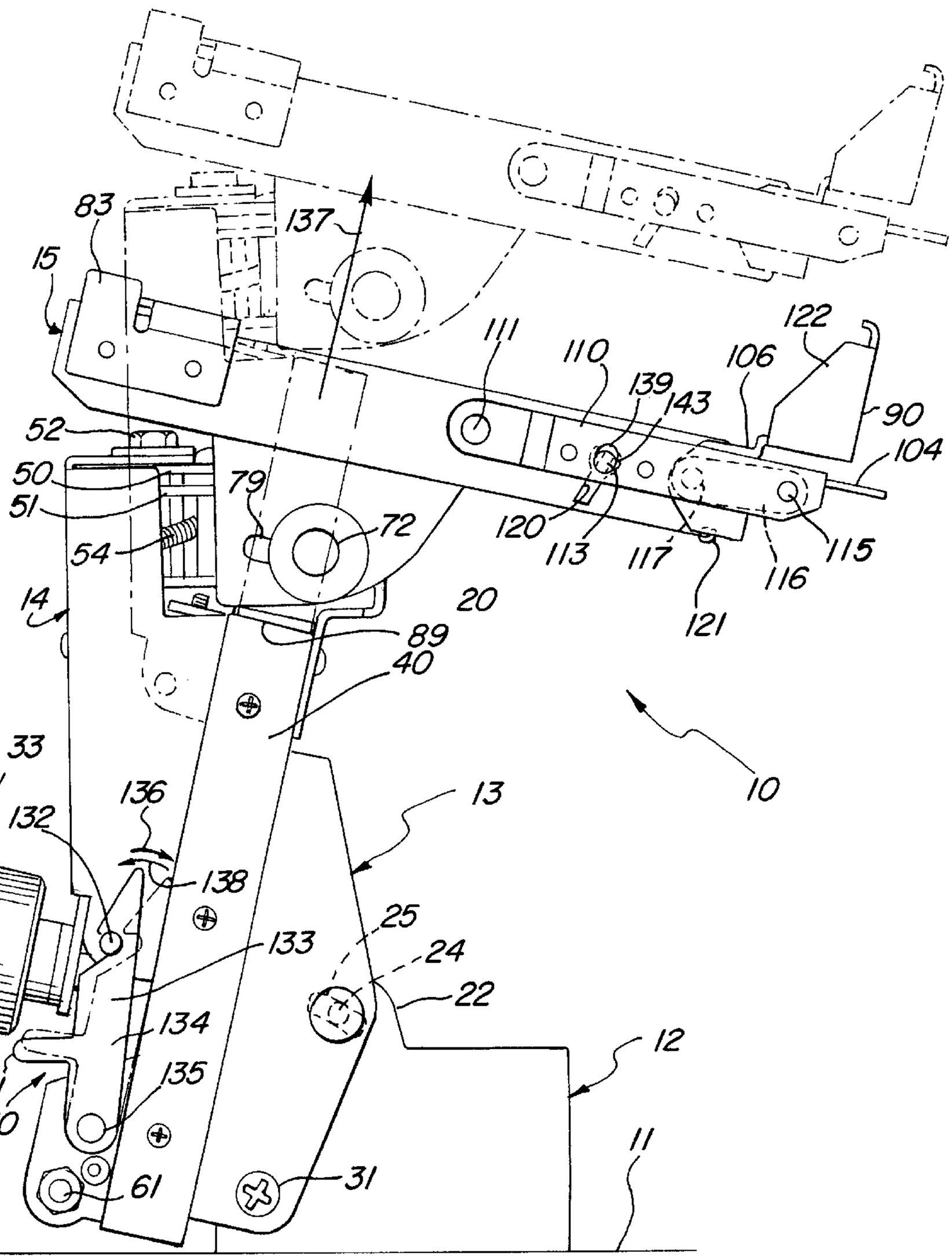
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FIG. 3

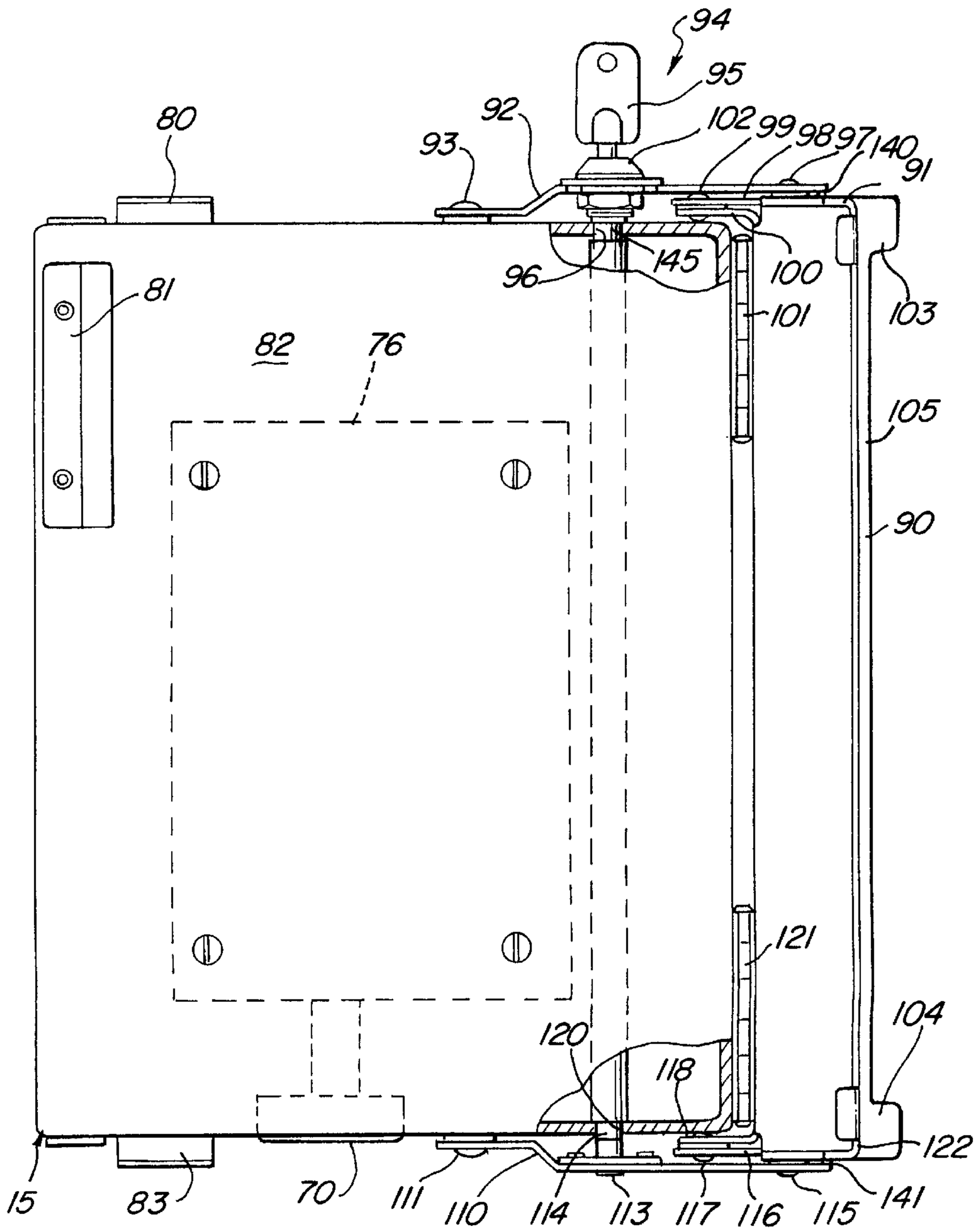
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FIG. 4

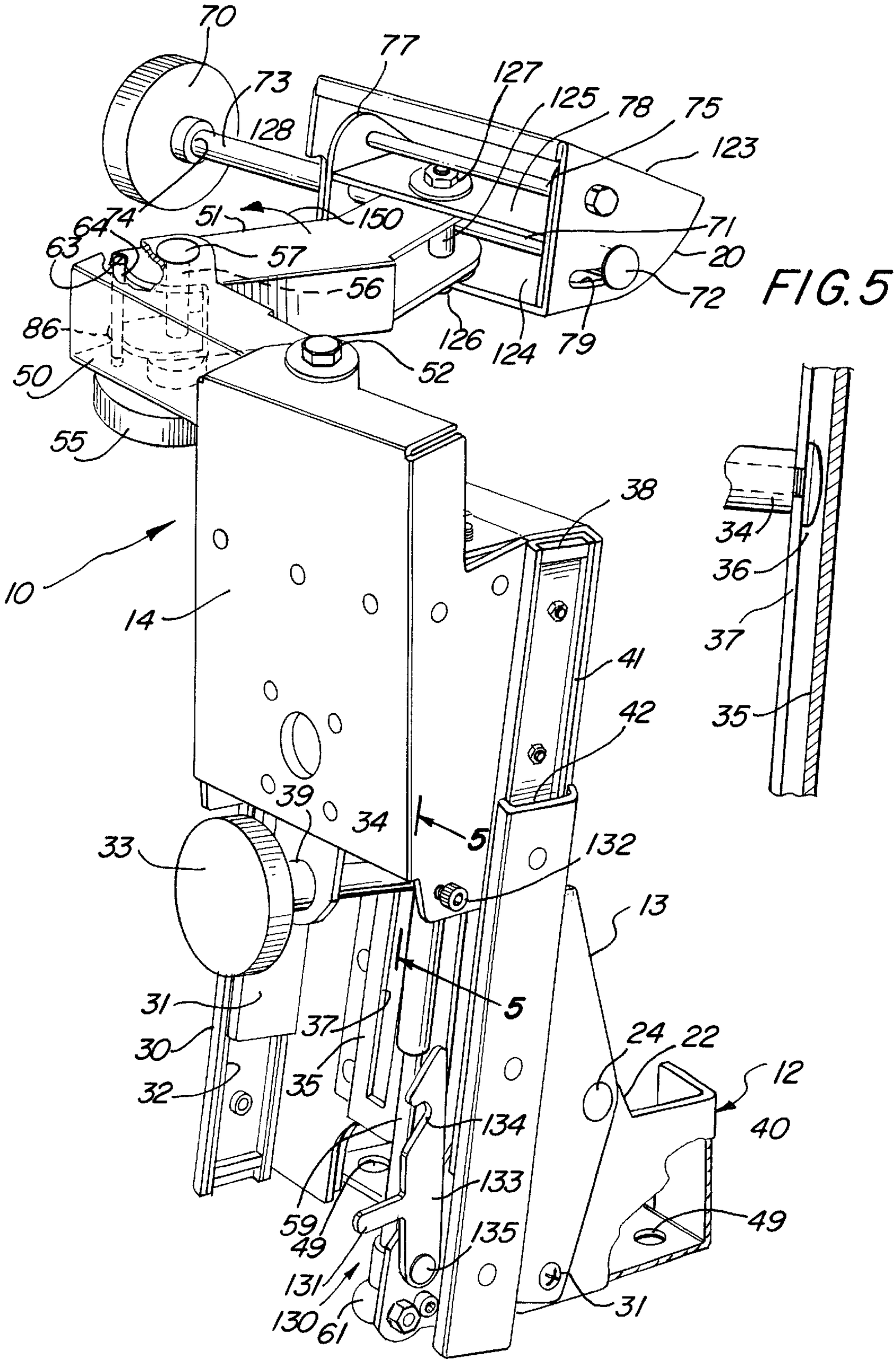
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FIG. 5

COMPUTER SUPPORT FOR VEHICLE USE HAVING MULTIPLE POSITION ADJUSTMENTS

FIELD OF THE INVENTION

This invention relates generally to computer support systems and particularly to those utilized within the interior of emergency and service vehicles such as police, fire, and ambulance vehicles. The present invention is further related to any situation in which it is desired to provide an adjustable support for a computer in commercial or recreational type vehicles as well.

BACKGROUND OF THE INVENTION

The advent of small powerful computers such as notebook computers and/or laptop computers and similar devices has provided an effective tool for use in connection with activities such as police service, fire fighting, and ambulance or emergency medical type vehicles. As the use of such small portable computers has continued, the prospect looms for provision of such computers within the interior of conventional vehicles and commercial/industrial vehicles. In the environment of police vehicles in particular the access via the radio transmission system of the vehicle facilitates rapid access to information required by police officers. Critical information needs such as tracing license numbers, obtaining an indication of persons wanted for arrest warrants and so on as well as other forms of information is available via data links. Notsurprisingly, police and other emergency vehicle users have for the most part acceded to ever increasing use of and dependence upon vehicle installed computers. In a typical computer installation the raised hump often referred to as the transmission hump within the vehicle receives a conforming bracket overlying the transmission hump and secured to several structural strong points such as seat bolts. A support base to which a riser is secured is attached to the bracket. The riser in turn supports a generally horizontal computer platform for receiving the computer and supporting it between the front seats of the vehicle.

Such computer supports are required to meet several environmental limitations within the vehicle. For example, in vehicles such as police cars which are converted standard vehicles, the interior is already substantially crowded due to the installation of a gun rack, a video camera, and an Emergency Equipment Console as well as other miscellaneous equipment. Further, the typical use to which such vehicles are subjected requires positional capability which accommodates persons in either of the vehicle front seats. Finally, some mechanism must be provided for securely locking the computer within the vehicle.

To meet the need for effective support of computers within such vehicles, practitioners in the art have provided a variety of devices for receiving and securing the computers. Thus, practitioners employ a metal base which is configured for attachment to the vehicle transmission hump together with a vertically oriented and often rearwardly angled riser which supports the computer platform. Most laptop, notebook or other portable computers provide cooperative portions which facilitate attachment of the computer to the platform. Also provided are numerous connection ports at the rear of the computer for communicating information and power between the computer and the remainder of the vehicle electrical system.

Such devices have, to some extent, met some of the above requirements. However, most either lack the full multi-access adjustment capabilities desired within the crowded

vehicle environment or are fabricated utilizing a prohibited degree of complexity and costs.

As a result, there remains a need in the art for ever more efficient, cost effective, simple to use and reliable computer support apparatus for vehicular operation of computer devices.

SUMMARY OF THE INVENTION

Accordingly, it is a general object of the present invention to provide an improved computer support for vehicle use. It is a particular object of the present invention to provide an improved computer support for vehicle use which extends the position adjustment of the supported computer to better accommodate the limited space within the vehicle interior.

In accordance with the present invention, there is provided a computer support for use in supporting a computer within a vehicle, the computer support comprising: a base securable to a surface within a vehicle; a riser bracket pivotally secured to the base at a first pivotal attachment; a pair of extendible risers each secured to the riser bracket and each having an extendible slide for vertical position adjustment; an arm carrier secured to the slides; a pair of elongated arms pivotally joined together at a common pivot to form a second pivotal attachment, one of the elongated arms being pivotally secured to the arm carrier at a third pivotal attachment; a platform bracket carrier pivotally secured to the remaining one of the elongated arms at a fourth pivotal attachment; a platform bracket pivotally secured to the platform bracket carrier at a fifth pivotal attachment; a computer platform secured to the platform bracket and having means for engaging a computer; and lock means for releasibly captivating a computer upon the computer platform.

BRIEF DESCRIPTION OF THE DRAWINGS

The features of the present invention, which are believed to be novel, are set forth with particularity in the appended claims. The invention, together with further objects and advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings, in the several figures of which like reference numerals identify like elements and in which:

FIG. **1** sets forth a side elevation view of a computer support constructed in accordance with the present invention supporting a typical computer in dashed-line representation;

FIG. **2** sets forth a side elevation view of the present invention computer support indicating vertical riser adjustment positions;

FIG. **3** sets forth a partially sectioned top view of the present invention computer support;

FIG. **4** sets forth a partially sectioned perspective view of the present invention computer support having the computer platform removed therefrom;

FIG. **5** sets forth a partial section view of the computer support of FIG. **4** taken along section lines **5**—**5** therein.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. **1** sets forth a side elevation view of a computer support constructed in accordance with the present invention and generally referenced by numeral **10**. By way of overview, computer support **10** is fabricated by assembling several subassemblies which includes a base **12**, a riser **30**, an arm carrier **14**, a pair of pivotally coupled arms **50** and **51**, a platform bracket **20** and a computer platform **15**. Base **12**

provides attachment to a vehicle surface **11** such as the transmission hump of a vehicle and in turn supports a riser bracket **13** which supports riser **30**. Arm carrier **14** is secured to and vertically moveable with riser **30** to elevate computer platform **15** as desired. Pivotally coupled arms **50** and **51** support platform **15** through platform bracket **20**. As a result and as is described below in greater detail, computer **65** having a lid **66**, screen **67** and hinge **68** is supported upon computer platform **15** and is moveable vertically, front-to-back, axially, and side-to-side with each position being capable of fixed adjustment.

More specifically, computer support **10** includes a base **12** formed of a rigid material such as steel having a plurality of apertures such as apertures **49** (seen in FIG. **4**) formed in the bottom surface thereof to facilitate attachment to a vehicle **11**. Such attachment may be carried forward using conventional fasteners. Base **12** further defines a pair of generally parallel upwardly extending flanges **21** and **22** (flange **22** shown in FIG. **4**). Flange **21** defines a curved slot **23** which receives a bolt **24**. While not seen in the figures, it will be understood that flange **22** shown in FIG. **4** defines a corresponding curved spot which also receives bolt **24**.

A riser bracket **13** is received upon flanges **21** and **22** and is secured thereto by bolt **24** and a pivot **30**. While not seen in FIG. **1**, it will be understood that riser bracket **13** and flanges **21** and **22** (flange **22** seen in FIG. **4**) define respective apertures which facilitate the pivotal attachment using pivot bolt **30** and bolt **24**. In accordance with the preferred embodiment of the present invention, riser bracket **13** is pivotable about pivot **30** in the directions indicated by arrows **62** as bolt **24** is loosened to facilitate movement through slot **23** and slot **25** (seen in FIG. **2**). The angular adjustment thus provided between base **12** and riser bracket **13** is set to the desired angle after which bolt **24** is tightened to secure and maintain the selected adjustment. A pair of risers **30** and **40** (riser **40** seen in FIG. **4**) are secured to riser bracket **13**. A pair of slides **31** and **41** (slide **41** seen in FIG. **4**) are telescopically moveable within risers **30** and **40** respectively for upward extension from the collapsed position shown in FIG. **1**. As is better seen in FIG. **4**, slides **31** and **41** support platform bracket **20** for vertical movement as slides **31** and **41** are moved within interior channels **32** and **42** formed in risers **30** and **40** respectively. This vertical movement of platform bracket **20** allows the vertical position of computer platform **15** to be adjusted as shown in FIG. **2**.

Returning to FIG. **1**, an arm carrier **14** is secured to slides **31** and **41** of risers **30** and **40** (riser **40** and slide **41** seen in FIG. **4**) and is thus moveable in combination with platform **20**. A bolt shaft **34** includes a head **36** received within a lock guide **35** for sliding attachment. Shaft **34** is threadably engaged with an interior threaded end **39** of a riser adjustment knob **33**. The vertical position of arm carrier **14**, platform bracket **20** and risers **30** and **40** with respect to riser bracket **13** is secured at a selected height by tightening riser adjustment knob **33** against lock guide **35**.

Arm carrier **14** is, as mentioned above, secured to and carried with risers **30** and **40**. Arm carrier **14** includes a pivot **52** formed of a bolt having an elongated shaft for threaded attachment to arm carrier **14**. Pivot **52** receives one end of an arm **50** in pivotal attachment. As is better seen in FIG. **4**, arm **50** is pivotable about pivot **52** and is further coupled to an arm **51** in a second pivotal attachment provided by a bolt **56**. Bolt **56** includes a head **57** and a threaded end at the opposite end thereof (not shown). A knob **55** includes a threaded portion **58** which receives the threaded end of bolt **56**. A spring **54** is coupled between bolt **56** and arm **50** to provide a restoring force urging the combination of arms **50** and **51** towards the collapsed position shown in FIG. **1**. Knob **55** is utilized to secure the angular position selected between arms **50** and **51** to position platform bracket **20** while the bolt of pivot **52** is given a fixed setting.

As is better seen in FIG. **4** and described in greater detail below, platform bracket **20** is pivotally secured to the outer end of arm **51** by a pivot bolt **125** to allow platform bracket **20** to pivot in a horizontal plane. By means also set forth below in FIG. **4** in greater detail, platform bracket **20** is pivotal in a vertical plane to facilitate the positioning of platform bracket **20** at the desired tilt-angle. Platform bracket **20** further supports a generally rectangular and generally planar flange **76** having a plurality threaded apertures **84** and **85** formed therein.

A computer platform **15** forms a generally planar member having a substantially planar upper surface **82**. Platform **15** is received upon and secured to flange **76** of platform bracket **20** in the manner shown in FIG. **3** using a plurality of threaded fasteners. Computer platform **15** defines a pair of brackets **80** and **83** (bracket **83** seen in FIG. **3**) together with a clamp **81**. For purposes of illustration, a conventional computer of the type contemplated in the present invention is shown in dashed-line representation and is generally referenced by numeral **65**. In accordance with conventional fabrication techniques, computer **65** includes cooperating portions which facilitate the attachment of computer **65** upon surface **82** using brackets **80** and **83** (bracket **83** seen in FIG. **3**).

Computer platform **15** further includes a pivotally moveable lock bar **90** having corner flanges **91** and **122** (flange **122** seen in FIG. **3**). In the raised position shown in FIG. **1**, lock bar **90** operates to complete the secure attachment of computer **65** upon computer platform **15**. In essence, lock bar **90** presses against the front corners of computer **65** to maintain secure attachment and position and to prevent removal of computer **65**.

Computer platform **15** further supports a key lock operative locking mechanism **94** which allows restriction of computer removal to persons having the prescribed cooperating key. Locking mechanism **94** includes a lock arm **92** having one end pivotally secured to platform **15** by a pivot **93**. The remaining end of lock arm **92** is secured to a tab **103** which in turn extends from a tab carrier **105** (seen in FIG. **3**). Thus, lock arm **92** is pivotable about pivot **93** in response to force applied to tab **103**. As is better seen in FIG. **2**, lock mechanism **94** further includes a lock arm **110** pivotally secured to platform **15** by a pivot **111**. In further correspondence to lock arm **92**, lock arm **110** is secured to a tab **104** which, as is seen in FIG. **3**, is also joined to tab carrier **105**. Thus, the combined structures of lock arms **92** and **110** together with tabs **103** and **104** and tab carrier **105** is pivoted with respect to platform **15** by pivots **93** and **111** respectively.

Lock bar **90** defines corner flanges **91** and **122** (seen in FIG. **2**) which receive the front corners of computer **65** in the locked position shown in solid-line representation in FIG. **1**. Lock bar **90** further includes a pair of flanges **100** and **118** (seen in FIG. **3**) which pivotally couple lock bar **90** to hinges **101** and **121** (seen in FIG. **3**). As a result, lock bar **90** is pivotable about hinges **101** and **121** between the locked position shown in solid-line representation and the open position shown in dashed-line representation and as indicated by arrows **47**.

Lock arm **92** includes a pivot **97** coupled to one end of a connecting link **98** (seen in FIG. **3**), the remaining end of

which is pivotally coupled to flange **100** by a pivot **99**. Once again with temporary reference to FIG. **2**, it will be noted that lock arm **110** includes a pivot **115** coupled to one end of a connecting link **116**, the remaining end of which is pivotally coupled to flange **106** by a pivot **117**.

In the operation of lock mechanism **94**, it will be assumed initially that key lock **102** has been moved to the open position allowing removal of computer **65**. Accordingly, tabs **103** and **104** (seen in FIG. **3**) are pressed downwardly as indicated by arrow **48**. The downward movement of tabs **103** and **104** pivots lock arms **92** and **110** (seen in FIG. **3**) about their respective pivots to the dashed-line position shown in FIG. **1**. As lock arms **92** and **110** pivot downwardly in the direction indicated by arrow **46**, the coupling between the lock arms and flanges **100** and **118** (seen in FIG. **3**) causes lock bar **90** to pivot about hinges **101** and **121**. Thus, lock bar **90** is simultaneously lowered and pivoted toward the dashed-line position shown in FIG. **1**. Thereafter, lock bar **90** no longer captivates computer **65** and the computer may be removed from platform **15**.

Computer **65** is captivated upon platform **15** by an operation essentially the reverse of that described above. Thus, the upward movement of tabs **103** and **104** (seen in FIG. **3**) pivots lock arms **92** and **110** (seen in FIG. **3**) upwardly in the direction indicated by arrow **45**. As the lock arms pivot upwardly, connecting links **98** and **116** pivot lock bar **90** about hinges **101** and **121** (seen in FIG. **3**) to again raise lock bar **90** to the locking position. In the preferred fabrication of the present invention, the placement of pivot **97** and pivot **99** relative to the length of link **98** is selected to provide a slight "over-center" final position when tab **103** is fully raised. This over-center action enhances the maintenance of position for lock bar **90**. In a similar function, the position of pivots **115** and **117** and the length of link **116** (all seen in FIG. **2**) is similarly structured to provide and over-center action.

Lock mechanism **94** is operated by key lock **102** to maintain a locked position or facilitate opening of lock bar **90** in response to the rotational position of a key (not shown) received within key lock **102**. The structure of key lock **102** in facilitating this locked and unlocked characteristic is described below in FIG. **3** in greater detail. Suffice it to note here that lock arm **92** is coupled to lock arm **110** (seen in FIG. **3**) by an elongated shaft which is movable in one rotational position and is captivated in an alternate rotational position. Thus, the rotational position of a key within key lock **102** determines whether lock arms **92** and **110** are secured or may be pivoted downwardly.

As described above, the combined assembly of slides **31** and **41** (seen in FIG. **4**) together with arm carrier **14** and arms **50** and **51** is movable vertically to a desired vertical extension. To facilitate a smoother action of the vertical extension thus provided, a gas shock element **59** includes a socket end **61** secured to base **12** at its lower end and a corresponding socket end (not shown) secured to arm carrier **14**. As a result, gas shock **59** provides a smoothing action for the vertical adjustment of arm carrier **14**.

Thus, computer support **10** provides a plurality of position and motion adjustments for computer **65** upon computer platform **15**. Certain adjustments set forth herein are preferably intended to be preset to the desired position and thereafter secured with a bolt using an appropriate wrench to be maintained on a somewhat long term basis. In contrast, other adjustments provided for computer support **10** are operated in response to readily accessible and easily handled knobs in anticipation of such adjustments being changed frequently to suit user preference. In essence, the more or less long term adjustments are likely to correspond to those position adjustments which are necessitated in order to fit computer support **10** into the environment while the more frequently adjusted position apparatus is anticipated to be used in configuring computer support **10** to individual preferences of different users within the host vehicle.

Thus for example, the angle between risers **30** and **40** (seen in FIG. **2**) which determines the vertical axes of movement of computer platform **15** is set in a generally long term setting by tightening bolt **24** against riser bracket **13** and base **12**. With this angle determined, computer platform **15** may be raised along the main axes of risers **30** and **40** (seen in FIG. **2**) by loosening riser adjustment knob **33** raising the platform to the desired position and tightening riser adjustment knob **33**. Once the general height has been adjusted, the interior end of arm **50** is adjusted with respect to arm carrier **14** by tightening the bolt provided at pivot **52**. This sets the range of motion for arms **51** and **52** and the corresponding range of horizontal positions available for computer platform **15**. The horizontal position of computer platform **15** may then be adjusted by loosening knob **55** and moving platform **15** to the desired horizontal position. Thereafter, knob **55** is tightened securing the angle between arms **50** and **51** and setting the horizontal position of computer platform **15**. Once the horizontal position of platform **15** has been set, a further horizontal adjustment of platform **15** may be made by pivoting platform bracket **20** about bolt **125** (seen in FIG. **4**). Finally, the tilt or angle of platform **15** is adjusted by loosening platform tilt adjustment knob **70** and tilting computer platform **15** to the desired angle. Tightening of knob **70** then secures this position.

As a result of the foregoing described multiple adjustment capability of the present invention computer support, computer **65** may for all practical purposes be positioned of a wide range of positions both vertically, horizontally and angularly to a degree that variation of the size and preferences of users as well as exchange between the operator's position in the driver seat verses the operator's position being in the passenger seat. In further accordance with the present invention, the support of computer **65** upon computer **15** is solid and secure through all ranges of motion and adjustment.

FIG. **2** sets forth a side elevation view of computer support **10** in its contracted or compacted position. FIG. **2** also shows computer support **10** in its raised or extended position as depicted in dashed-line representation. As described above, computer support **10** includes a base **11** having a pair of flanges **21** and **22** (flange **21** seen in FIG. **1**). Base **12** is secured to a vehicle surface **11** using a plurality of conventional fasteners (not shown) which are passed through apertures **49** of base **12** (seen in FIG. **4**). Computer support **10** further includes a riser bracket **13** having a pivot **31** securing riser bracket **13** to base **12** in a pivotal attachment. In addition, riser bracket **13** supports a pair of riser **30** and **40** (riser **30** seen in FIG. **4**). Flanges **21** and **22** define respective curved slots **25** and **23** (seen in FIG. **1**) through which a conventional headed bolt **24** is passed and secured by a conventional fastening nut. Computer support **10** further includes an arm carrier **14** secured to risers **30** and **40** by a pair of slides **31** and **41** respectively (seen in FIG. **4**). Arm carrier **14** further supports and arm **50** in a pivot attachment using a bolt **52** together with an arm **51** pivotally coupled to the end of arm **50**. A return spring **54** is operative to urge arms **50** and **51** to the collapsed position shown in FIG. **2**.

A platform bracket **20** is supported upon the outer arm **51** in the manner seen in FIG. **4**. Suffice it to note here that the

combination of arm carrier **14**, arms **50** and **51**, and platform bracket **20** are vertically moveable in the direction indicated by arrow **137** toward the extended position shown in dashed-line representation to raise platform bracket **20**. A stop **89** is secured to the upper portion of slide **41** to limit the downward travel of platform bracket **20**. Arm carrier **14** further includes a lock pin **132**. Riser bracket **13** further includes a pivot **135** having a latch arm **133** pivotally secured thereto. Latch arm **133** cooperates with pin **132** to provide a latch mechanism **130**. Latch arm **133** further includes a tab **131** and a notch **134**. While not seen in FIG. **2**, it will be understood that latch mechanism **130** further includes a spring urging latch arm **133** in the pivotal direction indicated by arrow **138**. With arm carrier **14** at its lowest position as shown as solid line representation in FIG. **2**, pin **132** is received within notch **134** securing arm carrier **14** at its lowest position. To raise arm carrier **14** in the direction indicated by arrow **137** for adjustment, the user simply rotates latch arm **133** in the direction indicted by arrow **136** using tab **131**. This releases pin **132** and allows arm carrier **14** to be raised extending sides **31** and **41** (seen in FIG. **4**) upwardly thereby raising platform bracket **20**. As described above, bolt **24** may be loosened to pivot riser bracket **13** about pivot **31** to adjust the vertical angle of this upward movement. As is also described above, a riser adjustment knob **33** includes a threaded end **39** which as is better seen in FIG. **5** is operative to secure the desired vertical extension of risers of **30** and **40** (seen in FIG. **4**).

In accordance with an important aspect of the present invention, latch **130** provides a simple "push-down" latch to quickly and easily secure and latch the present invention computer support in the collapsed position of FIG. **1**. This allows the vehicle occupants to quickly secure the computer at a position which is for the most part, removed from the space taken up by a vehicle air bag deployment. The effect of having the support and its computer within the path of an exploding air bag could be catastrophic, Thus, this feature alone renders the present invention computer support more safe and secure by ensuring that the computer will either not be impacted by the air bag or merely minimally impacted.

A platform bracket **20** is pivotally secured to arm **51** in the manner shown more clearly in FIG. **4**. Suffice it to note here that platform bracket **20** is adjustable to provide the desired tilt-angle using a bolt **71** and a platform adjustment knob **70** (both seen in FIG. **4**). Slot **79** receives blot **71** and secures head **72** against one side of platform bracket **20**. Platform bracket **20** further supports a computer platform **15** having a planar surface and a plurality of brackets **83** and **80** (bracket **80** seen in FIG. **3**) supported thereon for securing a conventional computer such as computer **65** shown in FIG. **1**. Computer platform **15** further supports a lock bar **90** having a flange **106** pivotally secured to platform **15** by a hinge **21**. A lock arm **110** is pivotally secured to platform **15** by a pivot **111** and defines an aperture **139** therein. Correspondingly, computer platform **15** defines a curved slot **120** aligned with aperture **139**. As described above in FIG. **1**, a shaft **113** is coupled to key lock **102** and extended through slot **120** and aperture **139**. As is better seen in FIG. **3**, a tab carrier **105** is joined to the forward ends of lock arms **110** and **92** in a conventional attachment such as welding or the like. A tab **104** extends forwardly from tab carrier **105** and lock arm **110** in the manner seen in FIG. **3**. A link **116** is coupled to the forward end of lock arm **110** by a pivot **115** and is further coupled to flange **106** above hinge **121** by a pivot **117**. As described above in FIG. **1**, a corresponding attachment is provided between the forward arm of lock arm **92** and flange **100** by a link **98**. Lock bar **90** includes a flange **122** which maintains the position of a computer upon computer platform **15**. As described above, lock arm **110** is pivoted downwardly about pivot **111** as tab **104** is pressed causing the combined structure of lock bar **90** and flange **106** to pivot downwardly about hinge **121**. During this pivotal motion of arm **110**, shaft **113** travels through curved slot **120**. In this position a computer supported upon computer platform **15** may be removed by sliding it forwardly with lock bar **90** pivoted out of the way as shown in dashed-line representation in FIG. **1**.

FIG. **3** sets forth a partially sectioned top view of computer platform **15** supported upon flange **76** of platform bracket **20**. As described above, the tilt-angle of flange **76** and platform **15** is adjustable and maintainable at a desired tilt-angle by a platform tilt adjustment knob **70**.

Platform **15** defines a generally planar upper surface and includes a pair of brackets of **80** and **83** on opposed sides thereof. A clamp **81** is secured to the upper surface of platform **15** and is operative to engage a cooperating lip upon computer **65** (seen in FIG. **1**) to secure a computer upon platform **15**. Platform **15** further includes a pair of lock arms **92** and **110** pivotally secured to platform **15** by pivots **93** and **111** respectively. A tab carrier **105** supports a pair of tabs **103** and **104** and is secured to the forward end of lock arms **92** and **110** by weld attachments **140** and **141**. A lock bar **90** having flanges **91** and **122** at the corner portions thereof is pivotally secured to platform **15** by a pair of hinges **101** and **121**. Lock bar **90** further includes a pair of flanges **100** and **118** extending rewardly from lock bar **90**. A pair of links **98** and **116** are pivotally coupled between lock arms **92** and **110** respectively and flanges **100** and **118** respectively. As described above, the combination of lock arms **92** and **110**, links **98** and **116**, and flanges **100** and **118** cooperate to pivot lock bar **90** between its raised and lowered positions.

Platform **15** defines a pair of slots **96** and **120** on opposite sides thereof. As shown above in FIGS. **1** and **2**, slots **96** and **120** are curved to facilitate pivotal movement of lock arms **92** and **110**. Slots **96** and **120** each provide an upper portion which is greater in dimension than the downwardly extending curved portion of the slots. Thus with temporary reference to FIG. **2**, it will be noted that curve slot **120** defines a larger diameter generally circular upper portion **143**. While not seen in FIG. **3**, it will be understood that slot **96** is identical to slot **120** and includes this enlarged portion feature. Returning to FIG. **3**, a shaft **113** is rotatably supported upon lock arm **110** at one end and is coupled to a key lock **102** at the remaining end. Thus, shaft **113** passes through curved slots **120** and **96** formed in platform **15**. Key lock **102** is in conventional fabrication and receives and supports a key **95**. Key lock **102** is secured to lock arm **90** in the manner shown in FIG. **1** and cooperates with key **95** to form a lock mechanism **94**.

Shaft **113** defines a reduced size flatted portion **145** within slot **96** and a reduced size flatted portion **114** within slot **120**. The function of flatted portions **145** and **114** is operative to inhibit the movement of shaft **113** downwardly through slots **96** and **120** unless the shaft is rotated by key lock **102** and key **95** to the proper position of flatted portions **145** and **114**. Thus, the rotational position of key lock **102** provided by key **95** alternatively positions shaft **113** for movement downwardly through slots **96** and **120** or, alternatively, prevents downward movement from the enlarged portion of the slots. As a result, a lock mechanism **94** is provided which allows the user to prevent pivotal motion of lock bar **90** and thereby prevent the removal of a computer from platform **15**.

FIG. **4** sets forth a rear perspective view of the present invention computer support having computer platform **15**

removed therefrom. Computer support **10** includes a base **12** having flanges **21** and **22** (flange **21** shown in FIG. **1**). Base **12** is securable to a vehicle surface **11** which may for example comprise the transmission hump of a vehicle using conventional fasteners passing through apertures **49** formed in base **12**. A riser bracket **13** is pivotally secured to base **12** by a pair of pivots **30** and **31** (pivot **30** seen in FIG. **1**). A bolt **24** passes through riser bracket **13** and curved slots **23** and **25** (seen in FIGS. **1** and **2**). Bolt **24** is tightened to secure the angular position of riser bracket **13** about pivots **30** and **31**. Riser bracket **13** further supports a pair of elongated risers **30** and **40** each defining interior channel **32** and **42** respectively. A pair of moveable slides **31** and **41** are slidingly supported within channels **32** and **42** to provide a "telescoping" extension of slides **31** and **41** within risers **30** and **40**. Slide **41** further includes a stop **38** preferably formed of a resilient material or the like at the upper end thereof. As is better seen in FIG. **1**, slide **31** defines a corresponding resilient stop **38**. Riser bracket **13** further defines an elongated lock guide **35** having a slot **37** formed therein. Lock guide **35** and slot **37** extend vertically upon the back side of riser bracket **13**.

An arm carrier **14** is secured to slides **31** and **41** using conventional attachments such as fasteners or the like. Arm carrier **14** further supports a shaft **34** and a knob **33**. Knob **33** defines an internally threaded end **39** which receives a correspondingly threaded end of shaft **34** (not shown). As is better seen in FIG. **5**, shaft **34** includes a reduced diameter portion extending through slot **37** and supporting a head **36** within lock guide **35**.

Returning to FIG. **4**, the tightening of knob **33** secures the vertical position of arm carrier **14** at the desired height. A gas shock **59** includes a shock end **61** secured to riser bracket **13**. Shock **59** extends upwardly into arm carrier **14** and by means not shown is secured to arm carrier **14**. The function of shock **59** is to provide a smoother action for raising and lowering arm carrier **14**.

Arm carrier **14** further supports a lock pin **132** while riser bracket **113** supports a latch arm **133** at a pivotally attachment **135**. Arm **133** defines a notch **134** and an extending tab **131**. Latch arm **133** and pin **132** cooperate to provide a latch mechanism **130**. Latch mechanism **130** operates to secure arm carrier **14** at its most compact or lowered position in the manner seen in FIG. **2**. The latch provided by latch mechanism **130** is released by simply pivoting tab **131** upwardly which in turn moves notch **134** away from pin **132** and releases arm carrier **14**. Thereafter, arm carrier **14** may be moved after knob **33** has been loosened to a desired height and then secured at such height by tightening knob **33**.

Arm carrier **14** further supports an arm **50** using a pivot bolt **52** at the upper portion of arm carrier **14**. Arm **50** further supports a travel limit pin **64** and is pivotally secured to an arm **51** by a bolt **56**. Bolt **56** includes a head **57** at the upper end thereof and a knob **55** beneath arms **50** and **51**. Bolt **56** is threadably received within knob **55** such that knob **55** may be tightened to squeeze arm **50** against arm **51** to secure the pivotal adjustment between arms **50** and **51** at a desired angular position. Arm **51** further defines a pair of notches **63** and **86** which contact pin **64** as arm **51** is pivoted in the direction indicated by arrow **150** to provide a travel limit for the pivotal motion of arm **51**.

Computer support **10** further includes a platform bracket **2**o having an upper surface **123** which receives flange **76** and platform **15** (seen in FIG. **3**). Platform bracket **20** further defines a curved slot **79** on one side thereof and a corresponding curved slot (not shown) on the opposite side thereof. Platform bracket **20** further defines a interior cavity **124** within which a platform bracket carrier **177** is pivotally secured by a pivot bolt **75**. An elongated bolt **71** having a head **72** extends through slot **79** of platform bracket **20** and the oppositely positioned slot (not shown). Platform bracket carrier **77** defines an aperture **28** on one side thereof and a corresponding aperture (not shown) on the remaining side thereof to facilitate extension of bolt **71** through platform bracket carrier **77**. Bolt **71** extends outwardly from platform bracket **20** and is threadably received within interior thread **74** of a platform tilt adjustment knob **70**. A bushing **73** is received upon bolt **71** and is interposed between knob **70** and platform bracket **20**. As a result, platform tilt adjusting knob **70** may be loosened to facilitate pivotal motion of platform bracket **20** about pivot bolt **75** to the desired tilt position after which tightening knob **70** draws head **72** against bracket **20** and secures the tilt adjustment.

Platform bracket **77** further includes a flange **78**. The outer end of arm **51** is received beneath flange **78** of platform bracket carrier **77** and is pivotally secured thereto by a bolt **125**. Bolt **125** includes a head **126** on the underside thereof and a faceting nut **127** on the upper end thereof. The tension upon bolt **125** may be adjusted to provide a desired angular relationship between platform bracket **20** and arm **51** or, alternatively, may be slightly loosened to facilitate pivotal motion as desired.

FIG. **5** sets forth a partial section view of the vertical position adjustment locking mechanism of computer support **10** taken along section lines **5**—**5** in FIG. **4**. As described above, a shaft **34** extends through a slot **37** formed in a lock guide **35**. With temporary reference to FIG. **4** it will be noted that lock guide **35** and slot **37** extend vertically between risers **30** and **40**. Further it will recalled that shaft **34** is coupled to adjustment knob **33**. Returning to FIG. **5**, the extension of shaft **34** into slot **37** and the larger size of head **36** with respect to slot **37** facilitate the closure of head **36** against shaft **34** when knob **33** (seen in FIG. **4**) is tightened. This mechanism provides for the maintenance of a desired vertical extension of the present invention computer support.

What has been shown is a computer support for vehicle use having multiple position adjustments which is securable within a vehicle such as a conventional automobile or the like and which is multiply positionable and multiply adjustable to provide effective support of a computer within the crowded interior of an emergency vehicle such as a police vehicle or the like. The device provided securely supports a computer at vertically any position or extension and vertically eliminates any looseness of support characteristic of other devices previously provided.

While particular embodiments of the invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspects. Therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of the invention.

That which is claimed is:

1. A computer support for use in supporting a computer within a vehicle, said computer support comprising:

a base securable to a surface within a vehicle;

a riser bracket pivotally secured to said base at a first pivotal attachment;

a pair of extendible risers each secured to said riser bracket and each having an extendible slide for vertical position adjustment;

an arm carrier secured to said slides;

a pair of elongated arms pivotally joined together at a common pivot to form a second pivotal attachment, one of said elongated arms being pivotally secured to said arm carrier at a third pivotal attachment;

a platform bracket carrier pivotally secured to the remaining one of said elongated arms at a fourth pivotal attachment;

a platform bracket pivotally secured to said platform bracket carrier at a fifth pivotal attachment;

a computer platform secured to said platform bracket and having means for engaging a computer; and

lock means for releasibly captivating a computer upon said computer platform.

2. The computer support set forth in claim **1** wherein said first pivotal attachment includes a first pivot bolt which may be loosened to facilitate vertical angle adjustment of said risers and tightened to secure a selected angle.

3. The computer support set forth in claim **2** wherein said vertical position adjustment includes a height-adjustment bolt and means for tightening said bolt to secure a selected height extension of said risers.

4. The computer support set forth in claim **3** wherein said second pivotal attachment includes a second pivot bolt which may be loosened to facilitate adjustment of the angle between said arms and tightened to secure a selected angle.

5. The computer support set forth in claim **4** wherein said third pivotal attachment includes a third pivot bolt which may be loosened to facilitate adjustment of the angle between said arm carrier and said one of said elongated arms and tightened to secure a selected angle.

6. The computer support set forth in claim **5** wherein said fourth pivotal attachment includes a fourth pivot bolt which may be loosened to facilitate adjustment of the angle between said platform carrier bracket and said remaining one of said elongated arms and tightened to secure a selected angle.

7. The computer support set forth in claim **6** wherein said fifth pivotal attachment includes a fifth pivot bolt which may be loosened to facilitate adjustment of the tilt-angle between said platform bracket and said platform bracket carrier and tightened to secure a selected tilt-angle.

8. The computer support set forth in claim **3** wherein said height-adjustment bolt includes a height-adjustment knob secured thereto in a threaded engagement.

9. The computer support set forth in claim **4** wherein said second pivot bolt includes an arm-angle adjustment knob secured thereto in a threaded engagement.

10. The computer support set forth in claim **7** wherein said fifth pivot bolt includes a tilt-angle adjustment knob secured thereto in a threaded engagement.

11. The computer support set forth in claim **1** wherein said fifth pivotal attachment includes a fifth pivot bolt which may be loosened to facilitate adjustment of the tilt-angle between said platform bracket and said platform bracket carrier and tightened to secure a selected tilt-angle.

12. The computer support set forth in claim **11** wherein said fifth pivot bolt includes a tilt-angle adjustment knob secured thereto in a threaded engagement.

13. The computer support set forth in claim **1** wherein said second pivotal attachment includes a second pivot bolt which may be loosened to facilitate adjustment of the angle between said arms and tightened to secure a selected angle.

14. The computer support set forth in claim **13** wherein said second pivot bolt includes an arm-angle adjustment knob secured thereto in a threaded engagement.

15. The computer support set forth in claim **1** wherein said vertical position adjustment includes a height-adjustment bolt and means for tightening said bolt to secure a selected height extension of said risers.

16. The computer support set forth in claim **15** wherein said height-adjustment bolt includes a height-adjustment knob secured thereto in a threaded engagement.

17. The computer support set forth in claim **1** further including a releasible latch operative between said arm carrier and said riser bracket for latching said riser bracket in its lowest vertical height position.

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